SEQUENCE LISTING

<110> AVANT Immunotherapeutics, Inc. Rittershaus, Charles Thomas, Lawrence

<120> Xenogeneic Cholesteryl Ester Transfer Protein (CETP for Modulation of CETP Activity

<130> sequence listing for TCS-420.1 PCT

<140> PCT/US98/22145

<141> 2000-10-20

<150> USSN 08/954,643

<151> 1997-10-20

<160> 7

<170> PatentIn Ver. 2.1

<210> 1

<211> 476

<212> PRT

<213> Homo sapiens

1

Cys Ser Lys Gly Thr Ser His Glu Ala Gly Ile Val Cys Arg Ile Thr 5 15 10

Lys Pro Ala Leu Leu Val Leu Asn His Glu Thr Ala Lys Val Ile Gln 20 30

Thr Ala Phe Gln Arg Ala Ser Tyr Pro Asp Ile Thr Gly Glu Lys Ala 35 40 45

Met Met Leu Leu Gly Gln Val Lys Tyr Gly Leu His Asn Ile Gln Ile 50

Ser His Leu Ser Ile Ala Ser Ser Gln Val Glu Leu Val Glu Ala Lys 65 70 75

Ser Ile Asp Val Ser Ile Gln Asn Val Ser Val Val Phe Lys Gly Thr 90

Leu Lys Tyr Gly Tyr Thr Thr Ala Trp Trp Leu Gly Ile Asp Gln Ser 100 105 110

Ile	Asp	Phe 115	Glu	Ile	Asp	Ser	Ala 120	Ile	Asp	Leu	Gln	Ile 125	Asn	Thr	Gln
Leu	Thr 130	Сув	Asp	Ser	Gly	Arg 135	Val	Arg	Thr	Asp	Ala 140	Pro	Asp	Сув	Tyr
Leu 145	Ser	Phe	His	Lys	Leu 150	Leu	Leu	His	Leu	Gln 155	G1y	Glu	Arg	Glu	Pro 160
Gly	Trp	Ile	Lys	Gln 165	Leu	Phe	Thr	Asn	Phe 170	Ile	Ser	Phe	Thr	Leu 175	Lys
Leu	Val	Leu	Lys 180	Gly	Gln	Ile	Сув	Lys 185	G1u	Ile	Asn	Val	Ile 190	Ser	Asn
Ile	Met	Ala 195	Asp	Phe	Val	Gln	Thr 200	Arg	Ala	Ala	Ser	Ile 205	Leu	Ser	Asp
Gly	Asp 210	Ile	Gly	Va1	Asp	11e 215	Ser	Leu	Thr	Gly	Asp 220	Pro	Val	Ile	Thr
Ala 225	Ser	Tyr	Leu	Glu	Ser 230	His	His	Lys	Gly	His 235	Phe	Ile	Tyr	Lys	Asn 240
Va1	Ser	Glu	Asp	Leu 245	Pro	Leu	Pro	Thr	Phe 250	Ser	Pro	Thr	Leu	Leu 255	Gly
Asp	Ser	Arg	Met 260	Leu	Tyr	Phe	Trp	Phe 265	Ser	Glu	Arg	Val	Phe 270	His	Ser
Leu	Ala	Lys 275	Val	Ala	Phe	G1n	Asp 280	Gly	Arg	Leu	Met	Leu 285	Ser	Leu	Met
Gly	Asp 290	Glu	Phe	Lys	Ala	Val 295	Leu	Glu	Thr	Trp	Gly 300	Phe	Asn	Thr	Asn
G1n 305	Glu	Ile	Phe	Gln	Glu 310	Val	Val	Gly	Gly	Phe 315	Pro	Ser	Gln	Ala	Gln 320
Val	Thr	Val	His	Cys 325	Leu	Lys	Met	Pro	Lys 330	Ile	Ser	Сув	Gln	Asn 335	Lys
Gly	Val	Val	Val 340	Asn	Ser	Ser	Val	Met 345	Val	Lys	Phe	Leu	Phe 350	Pro	Arg

Pro Asp Gln Gln His Ser Val Ala Tyr Thr Phe Glu Glu Asp Ile Val \$355\$

Thr Thr Val Gln Ala Ser Tyr Ser Lys Lys Lys Leu Phe Leu Ser Leu 370 375 380

Leu Asp Phe Gln Ile Thr Pro Lys Thr Val Ser Asn Leu Thr Glu Ser 385 390 395 400

Ser Ser Glu Ser Ile Gln Ser Phe Leu Gln Ser Met Ile Thr Ala Val 405 410 415

Gly Ile Pro Glu Val Met Ser Arg Leu Glu Val Val Phe Thr Ala Leu 420 425 430

Met Asn Ser Lys Gly Val Ser Leu Phe Asp Ile Ile Asn Pro Glu Ile 435 440 445

Ile Thr Arg Asp Gly Phe Leu Leu Gln Met Asp Phe Gly Phe Pro 450 450 455

Glu His Leu Leu Val Asp Phe Leu Gln Ser Leu Ser 465 470 475

<210> 2

<211> 1428

<212> DNA

<213> Homo sapiens

<400> 2

tgctccaaag gcacctcgca cgaggcaggc atcgtgtgcc gcatcaccaa gcctgccctc 60 ctggtgttga accacgagac tgccaaggtg atccagacg ccttccagcg agccagctac 120 ccagatatca cqggcqagaa qqccatqatq ctccttqqcc aaqtcaaqta tqqqttqcac 180 aacatccaga tcagccactt gtccatcgcc agcagccagg tggagctggt ggaagccaag 240 tecattgatg tetecattca gaacgtgtet qtqqtettea aqqqgaccet qaaqtatqqc 300 tacaccactq cctqqtqqct qqqtattqat caqtccattq acttcqaqat cqactctqcc 360 attgacetce agateaacae acagetgace tgtgactetg gtagagtgeg gacegatgee 420 cctgactgct acctgtcttt ccataagctg ctcctgcatc tccaagggga qcgaqagcct 480 gggtggatca agcagctgtt cacaaatttc atctccttca ccctgaagct ggtcctgaag 540 ggacagatct gcaaagagat caacgtcatc tctaacatca tggccgattt tgtccagaca 600 agggetgeca geateettte aqatqqaqac attqqqqtqq acattteeet qacaqqtqat 660 cccgtcatca cagcctccta cctggagtcc catcacaagg gtcatttcat ctacaagaat 720 gtctcagagg accteccet ecccaectte tegeceacae tgetggggga etceegeatg 780 ctgtacttct ggttctctga gcgagtcttc cactcgctqg ccaaqgtaqc tttccaqqat 840 ggccgcctca tgctcagcct gatgggagac gagttcaagg cagtgctgga gacctggggc 900 ttcaacacca accaggaaat cttccaagag gttgtcggcg gcttccccag ccaggcccaa 960 gtcaccgtcc actgcctcaa gatgcccaag atctcctqcc aaaacaaqgg agtcgtqqtc 1020 aattetteaq tqatqqtqaa atteetettt ccacqcccaq accaqcaaca ttetqtaqet 1080 tacacattty aagaggatat cytyactacc gtccaggcct cctattctaa gaaaaagctc 1140 ttcttaagcc tcttggattt ccagattaca ccaaaqactg tttccaactt qactgaqagc 1200

agctccgagt ccatccagag cttcctgcag tcaatgatca ccgctgtggg catccctgag 1260 gtcatgtctc ggctcgaggt agtgtttaca gccctcatga acagcaaagg cgtgagctc 1320 ttcgacatca tcaaccctga gattatcact cgagatggct tcctgctgct gcagatggac 1380 tttggcttcc ctgagcacct gctggtggat ttcctccaga gcttgagc 1428

<210> 3 <211> 496

<212> PRT

<213> Oryctolagus cuniculus

<400> 3

Cys Pro Lys Gly Ala Ser Tyr Glu Ala Gly Ile Val Cys Arg Ile Thr 1 $$\rm 10$$

Lys Pro Ala Leu Leu Val Leu Asn Gln Glu Thr Ala Lys Val Val Gln 20 25 30

Thr Ala Phe Gln Arg Ala Gly Tyr Pro Asp Val Ser Gly Glu Arg Ala 35 40 45

Val Met Leu Leu Gly Arg Val Lys Tyr Gly Leu His Asn Leu Gln Ile 50 55 60

Ser His Leu Ser Ile Ala Ser Ser Gln Val Glu Leu Val Asp Ala Lys 65 70 75 80

Thr Ile Asp Val Ala Ile Gln Asn Val Ser Val Val Phe Lys Gly Thr 85 90 95

Leu Asn Tyr Ser Tyr Thr Ser Ala Trp Gly Leu Gly Ile Asn Gln Ser 100 105 110

Val Asp Phe Glu Ile Asp Ser Ala Ile Asp Leu Gln Ile Asn Thr Glu 115 120 125

Leu Thr Cys Asp Ala Gly Ser Val Arg Thr Asn Ala Pro Asp Cys Tyr 130 135

Leu Ala Phe His Lys Leu Leu Leu His Leu Gln Gly Glu Arg Glu Pro 145 150 155 160

Gly Trp Leu Lys Gln Leu Phe Thr Asn Phe Ile Ser Phe Thr Leu Lys
165 170 175

Leu Ile Leu Lys Arg Gln Val Cys Asn Glu Ile Asn Thr Ile Ser Asn 180 185 190

Ile Met Ala Asp Phe Val Gln Thr Arg Ala Ala Ser Ile Leu Ser Asp Gly Asp Ile Gly Val Asp Ile Ser Val Thr Gly Ala Pro Val Ile Thr Ala Thr Tyr Leu Glu Ser His His Lys Gly His Phe Thr His Lys Asn Val Ser Glu Ala Phe Pro Leu Arg Ala Phe Pro Pro Gly Leu Leu Gly Asp Ser Arg Met Leu Tyr Phe Trp Phe Ser Asp Gln Val Leu Asn Ser Leu Ala Arg Ala Ala Phe Gln Glu Gly Arg Leu Val Leu Ser Leu Thr Gly Asp Glu Phe Lys Lys Val Leu Glu Thr Gln Gly Phe Asp Thr Asn Gln Glu Ile Phe Gln Glu Leu Ser Arg Gly Leu Pro Thr Gly Gln Ala Gln Val Ala Val His Cys Leu Lys Val Pro Lys Ile Ser Cys Gln Asn Arg Gly Val Val Val Ser Ser Ser Val Ala Val Thr Phe Arg Phe Pro Arg Pro Asp Gly Arg Glu Ala Val Ala Tyr Arg Phe Glu Glu Asp Ile Ile Thr Thr Val Gln Ala Ser Tyr Ser Gln Lys Lys Leu Phe Leu His Leu Leu Asp Phe Gln Cys Val Pro Ala Ser Gly Arg Ala Gly Ser Ser Ala Asn Leu Ser Val Ala Leu Arg Thr Glu Ala Lys Ala Val Ser Asn

Ile Ala Thr Val Gly Ile Pro Glu Val Met Ser Arg Leu Glu Val Ala
435 440 445

Leu Thr Glu Ser Arg Ser Glu Ser Leu Gln Ser Ser Leu Arg Ser Leu 420 425 430

Phe Thr Ala Leu Met Asn Ser Lys Gly Leu Asp Leu Phe Glu Ile Ile 450 455 460

Asn Pro Glu Ile Ile Thr Leu Asp Gly Cys Leu Leu Leu Gln Met Asp 465 470 475

Phe Gly Phe Pro Lys His Leu Leu Val Asp Phe Leu Gln Ser Leu Ser 485 490 495

<210> 4 <211> 1488 <212> DNA <213> Oryctolagus cuniculus

<400> 4

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<210> 5 <211> 477

<212> PRT <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: humanized rabbit CETP protein

<400> 5

Cys Pro Lys Gly Ala Ser Tyr Glu Ala Gly Ile Val Cys Arg Ile Thr 1 $$ 10 $$ 15

Lys Pro Ala Leu Leu Val Leu Asn Gln Glu Thr Ala Lys Val Val Gln 20 25 30

Thr Ala Phe Gln Arg Ala Gly Tyr Pro Asp Val Ser Gly Glu Arg Ala 35 40 45

Ser His Leu Ser Ile Ala Ser Ser Gln Val Glu Leu Val Asp Ala Lys 65 70 75 80

Thr Ile Asp Val Ala Ile Gln Asn Val Ser Val Val Phe Lys Gly Thr 85 \$90\$ 95

Leu Asn Tyr Ser Tyr Thr Ser Ala Trp Gly Leu Gly Ile Asn Gln Ser 100 105 110

Val Asp Phe Glu Ile Asp Ser Ala Ile Asp Leu Gln Ile Asn Thr Glu 115 120 125

Leu Thr Cys Asp Ala Gly Ser Val Arg Thr Asn Ala Pro Asp Cys Tyr 130 135 140

Leu Ala Phe His Lys Leu Leu Leu His Leu Gln Gly Glu Arg Glu Pro 145 150 155 160

Gly Trp Leu Lys Gln Leu Phe Thr Asn Phe Ile Ser Phe Thr Leu Lys 165 170 175

Leu Ile Leu Lys Arg Gln Val Cys Asn Glu Ile Asn Thr Ile Ser Asn 180 185 190

Ile Met Ala Asp Phe Val Gln Thr Arg Ala Ala Ser Ile Leu Ser Asp 195 200 205

Gly Asp Ile Gly Val Asp Ile Ser Val Thr Gly Ala Pro Val Ile Thr

210 215 220

Ala Thr Tyr Leu Glu Ser His His Lys Gly His Phe Thr His Lys Asn 225 230 235 240

Val Ser Glu Ala Phe Pro Leu Arg Ala Phe Pro Pro Gly Leu Leu Gly 245 250 255

Asp Ser Arg Met Leu Tyr Phe Trp Phe Ser Asp Gln Val Leu Asn Ser 260 265 270

Leu Ala Arg Ala Ala Phe Gln Glu Gly Arg Leu Val Leu Ser Leu Thr \$275\$ \$280\$ \$285\$

Gly Asp Glu Phe Lys Lys Val Leu Glu Thr Gln Gly Phe Asp Thr Asn 290 295 300

Gln Glu Ile Phe Gln Glu Leu Ser Arg Gly Leu Pro Thr Gly Gln Ala 305 310 315

Gln Val Ala Val His Cys Leu Lys Val Pro Lys Ile Ser Cys Gln Asn 325 $$ 330 $$ 335

Arg Gly Val Val Val Ser Ser Ser Val Ala Val Thr Phe Arg Phe Pro \$340\$ \$345\$

Arg Pro Asp Gly Arg Glu Ala Val Ala Tyr Arg Phe Glu Glu Asp Ile $355 \hspace{1cm} 360 \hspace{1cm} 365$

Ile Thr Thr Val Gln Ala Ser Tyr Ser Gln Lys Lys Leu Phe Leu His 370 375 380

Leu Leu Asp Phe Gln Cys Val Pro Lys Ala Val Ser Asn Leu Thr Glu 385 390 395 400

Ser Arg Ser Glu Ser Leu Gln Ser Ser Leu Arg Ser Leu Ile Ala Thr \$405\$

Val Gly Ile Pro Glu Val Met Ser Arg Leu Glu Val Ala Phe Thr Ala $420 \hspace{1.5cm} 425 \hspace{1.5cm} 430$

Leu Met Asn Ser Lys Gly Leu Asp Leu Phe Glu Ile Ile Asn Pro Glu \$435\$

Ile Ile Thr Leu Asp Gly Cys Leu Leu Gln Met Asp Phe Gly Phe 450 450 460

Pro Lys His Leu Leu Val Asp Phe Leu Gln Ser Leu Ser

<210> 6

<211> 496

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: humanized rabbit CETP protein

<400> 6

Cys Pro Lys Gly Ala Ser Tyr Glu Ala Gly Ile Val Cys Arg Ile Thr

1 5 10 15

Lys Pro Ala Leu Leu Val Leu Asn Gln Glu Thr Ala Lys Val Val Gln 20 25 30

Thr Ala Phe Gln Arg Ala Gly Tyr Pro Asp Val Ser Gly Glu Arg Ala
35 40 45

Val Met Leu Leu Gly Arg Val Lys Tyr Gly Leu His Asn Leu Gln Ile 50 55 60

Ser His Leu Ser Ile Ala Ser Ser Gln Val Glu Leu Val Asp Ala Lys 65 70 75 80

Thr Ile Asp Val Ala Ile Gln Asn Val Ser Val Val Phe Lys Gly Thr \$85\$ 90 95

Leu Asn Tyr Ser Tyr Thr Ser Ala Trp Gly Leu Gly Ile Asn Gln Ser 100 105 110

Val Asp Phe Glu Ile Asp Ser Ala Ile Asp Leu Gln Ile Asn Thr Glu 115 120 125

Leu Thr Cys Asp Ala Gly Ser Val Arg Thr Asn Ala Pro Asp Cys Tyr 130 135 140

Leu Ala Phe His Lys Leu Leu His Leu Gln Gly Glu Arg Glu Pro 145 150 155 160

Gly Trp Leu Lys Gln Leu Phe Thr Asn Phe Ile Ser Phe Thr Leu Lys $165 \hspace{1.5cm} 170 \hspace{1.5cm} 175$

Leu Ile Leu Lys Arg Gln Val Cys Asn Glu Ile Asn Thr Ile Ser Asn 180 185 190

- Ile Met Ala Asp Phe Val Gln Thr Arg Ala Ala Ser Ile Leu Ser Asp 195 200 205
- Gly Asp Ile Gly Val Asp Ile Ser Val Thr Gly Ala Pro Val Ile Thr 210 215
- Ala Thr Tyr Leu Glu Ser His His Lys Gly His Phe Thr His Lys Asn 225 230 235
- Val Ser Glu Ala Phe Pro Leu Arg Ala Phe Pro Pro Gly Leu Leu Gly $245 \hspace{1.5cm} 255 \hspace{1.5cm} 255$
- Asp Ser Arg Met Leu Tyr Phe Trp Phe Ser Asp Gln Val Leu Asn Ser 260 265 270
- Leu Ala Arg Ala Ala Phe Gln Glu Gly Arg Leu Val Leu Ser Leu Thr 275 280 285
- Gly Asp Glu Phe Lys Lys Val Leu Glu Thr Gln Gly Phe Asp Thr Asn 290 295 300
- Gln Glu Ile Phe Gln Glu Leu Ser Arg Gly Leu Pro Thr Gly Gln Ala 305 310 315 320
- Gln Val Ala Val His Cys Leu Lys Val Pro Lys Ile Ser Cys Gln Asn 325 330 335
- Arg Gly Val Val Val Ser Ser Ser Val Ala Val Thr Phe Arg Phe Pro 340 345 350
- Arg Pro Asp Gly Arg Glu Ala Val Ala Tyr Arg Phe Glu Glu Asp Ile \$355\$ \$360\$
- Ile Thr Thr Val Gln Ala Ser Tyr Ser Gln Lys Lys Leu Phe Leu His $370 \\ \hspace*{1.5cm} 375 \\ \hspace*{1.5cm} 380 \\ \hspace*{1.5cm}$
- Leu Leu Asp Phe Gln Cys Val Pro Ala Ser Gly Arg Ala Gly Ser Ser 385 395 400
- Ala Asn Leu Ser Val Ala Leu Arg Thr Glu Ala Lys Ala Val Ser Asn 405 410 415
- Leu Thr Glu Ser Arg Ser Glu Ser Leu Gln Ser Ser Leu Arg Ser Leu 420 425 430
- Ile Ala Thr Val Gly Ile Pro Glu Val Met Ser Arg Leu Glu Val Ala 435 440 445

Phe Thr Ala Leu Met Asn Ser Lys Gly Leu Asp Leu Phe Glu Ile Ile 450 455

Asn Pro Glu Ile Ile Thr Leu Asp Gly Cys Leu Leu Leu Gln Met Asp 465 \$470\$

Phe Gly Phe Pro Glu His Leu Leu Val Asp Phe Leu Gln Ser Leu Ser 485 $\,$ 490 $\,$ 495

<210> 7

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic fusion protein containing tetanus toxoid segment linked to human CETP C-terminus

<400> 7

Cys Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Phe 1 5 10 15

Gly Phe Pro Glu His Leu Leu Val Asp Phe Leu Gln Ser Leu Ser $20 \hspace{1.5cm} 25 \hspace{1.5cm} 30$